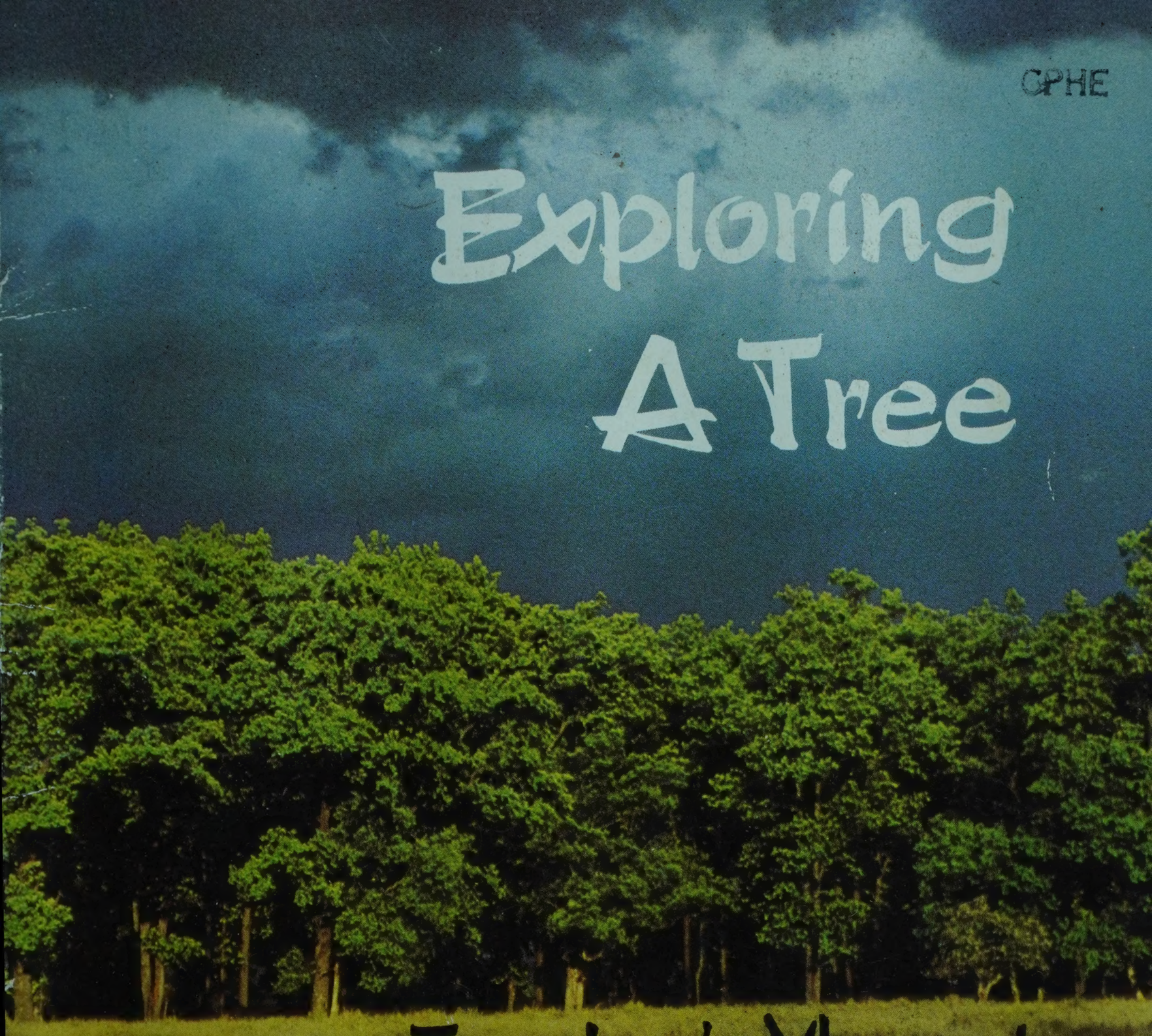
CPHE

Exploring A Tree



Teacher's Manual

Centre for Environment Education
Nehru Foundation for Development
Ahmedabad

Community Health Library and Information Centre
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Thaltej Tekra
Ahmedabad 380 054

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Kartikeya V. Sarabhai

The Project Team

Research and Development
Himani Desai
Santosh Kumar Gupta
Himanshu Joshi
Shailaja Joshi
E. K. Nareshwar
Gautam Patel
Mamata Pandya

Comment
Lavkumar Khacher
Anil Patel
Kartikeya V. Sarabhai

Editing
L. Balasubramanium
Nita Edwin
Anila Rao

Design
Hema Karkaria

Illustrations
Mukesh Acharya
Mukesh Barad
Shailesh Bhalani
Mukesh Panchal
Wilson Solanki
D. M. Thumber

Artworks
Shailesh Bhalani

Photographs
Manoj Dholakia
Dhun Karkaria
Hema Karkaria
Rajshree Sarabhai

Support Services
J. K. Nair
J. Krishnan Nair

157015
A-100

Dear teacher,

In today's rapidly progressing world, we are well aware of the relevance and limitations of textbook and homework methods of learning. What is taught becomes effective only when it is properly coordinated with how it is taught. This programme is developed as an alternative approach to teaching, and aims at making both teaching and learning an enjoyable and useful process.

"Exploring a Tree" is predominantly an outdoor, activity-based programme. The teacher's role here is that of a guide, who enables students to learn through participation, discovery and personal experience. The programme is a deliberate departure from the usual classroom method of teaching.

Nature games complement the activities to enhance students' perception and objectivity. We feel this helps in easier visualization and understanding of abstract concepts, and develops in students the ability to express themselves with greater confidence.

Emphasis is on the "how to" approach. This implies that importance is attached to the process of inquiry more than to merely getting the right answers. In these activities, the questions seldom bring forth straight, categorical answers but lead to more questions. These questions in turn open wider possibilities and draw the students' attention to the vibrant world that we all share.

Please go through the accompanying manual carefully before conducting the activities and games suggested in this programme. We are sure you will find them as enjoyable and meaningful as we have found them to be while developing them through trials with students.

We look forward to your responses, both positive and negative, in terms of your overall perception of the programme and the relevance of the contents and approaches in achieving the objectives effectively. Suggestions for improvement, additions, extensions and variations are welcome.

Objectives

The objectives of the programme are:

1. To develop the skill of observing our surroundings using all our senses of perception. To explore what plants, insects, birds, etc., are found on a particular tree.

2. To create an awareness of how the tree is important to a variety of creatures living on and around it. To discover the relationships among living things which reveal their interdependence.

3. To enable the students to understand that a tree is an environment by itself, and also a part of a larger environment.

4. To understand the uses of trees.

5. To generate an active interest in nature.

Background

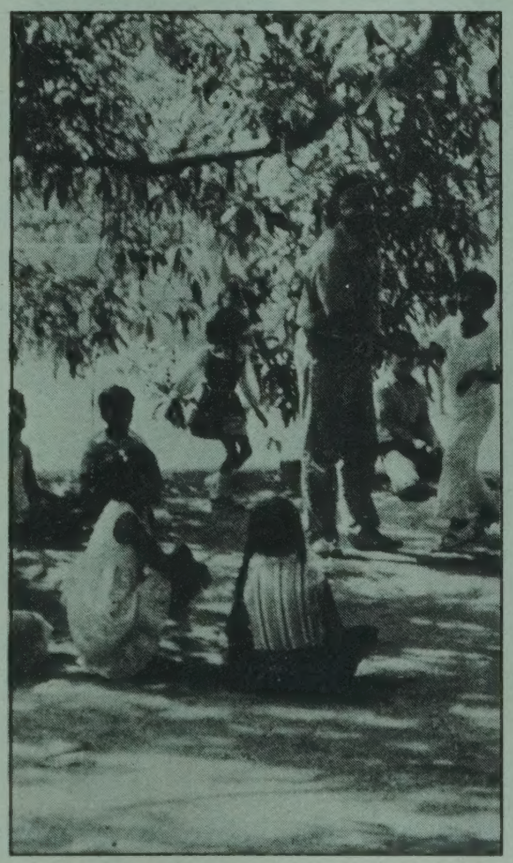
1. Suitable Place

An activity-based programme is best conducted outdoors. City schools may have access to playgrounds and gardens while rural schools are generally closer to the natural environment. Even in the most crowded areas, it is rare not to have at least a few trees in the vicinity.

If the tree is nearby and can be easily visited, you could hold all the sessions outdoors. In case this is not possible, you could conduct some sessions in the class itself. For this programme, advantage should be taken of picnics and outdoor excursions organized by schools from time to time.

2. Duration

The activities of this programme have been planned in four sessions, each of 40 minutes duration. However, you can extend the time of each session or have a larger number of shorter sessions. Information presented in the chapter on 'Extensions and Variations' will help you to innovate and add further sessions to make this a longer term project.



3. Some Hints

a) Explain the need for careful observation of both the familiar as well as the unfamiliar surroundings. We often take the familiar for granted and overlook some of its interesting aspects. Exploring the unfamiliar is an adventure and this adventure can become meaningful if done in a systematic manner.

b) Too many activities or questions may prevent students from giving their best. To avoid this, you may divide the programme into smaller units so that their attention is not lost. You may also break the monotony of the activities by alternating the activities with observation and recording, collection, games, discussions, or taking measurements.

c) The programme may interrupt class schedules. So plan the sessions in such a way that students are able to work on the project over a set period of time. Also take the opportunity of picnics, excursions, camps, etc.

d) The duration of activities may

not be sufficient to cover relevant portions of the syllabus. Hence make use of the flexibility of approach in this programme to condense or elaborate aspects desired.

e) You may not be in a position to devote enough time to all the activities, though they may be interesting. Therefore, arrange the activities in a sequence according to priority or importance.

4. Our Experiences

The tree programme was tried with students of standards V, VI and VII, at Sundarvan, Ahmedabad, during August-September, 1985. The activities worked well with all these standards and the responses of students varied according to age group.

Our trials showed that students of Std. V needed guidance in doing the activities. However, hints were given only when they were absolutely necessary. Problems were solved through discussions. The experience with Std. VII students was very encouraging. They showed greater receptivity to the concepts presented and were enthusiastic in carrying out all the activities.

Most of the students initially found it difficult to realize that: (a) the project was not a test and marks were neither given nor deducted, (b) they were the initiators and decision makers in the programme.

Dividing the class into small teams of eight students each, and asking each team to select a name for itself, like "Flowers", "Fruits", "Birds", "Squirrels", "Spiders", etc., make each group cohesive and help generate a friendly atmosphere. Each team should select a leader or spokesman who would record and report the team's observations.

The most crucial factor for the success of the programme is the direct involvement of the teacher. The extent to which the programme is understood, and the interest and enthusiasm with which it is handled affect the outcome no less The teacher's ability to do some of the activities with ease serves as an example and helps the students to follow the project.

5. Preparations

Select a site which has open spaces interspersed with trees so that students can move about freely and observe. If such a site cannot be found, select an area where there is a tree. A visit to the site before the actual sessions will facilitate smoother working.

Make sure that the time to reach the site, is less

than the time the project would take to do, unless it is part of a picnic or excursion. Easy accessibility is preferable so that frequent visits are possible and students arrive fresh and full of enthusiasm at the site. While selecting the site also keep in mind the activities suggested as Extensions and Variations and also the possibility of carrying cut a long term project based on the ideas of this programme.

Plan the amount of time you would like the students to spend at the site. Also, how much is to be done, i.e., whether several or all the activities are to be carried out during the visit.

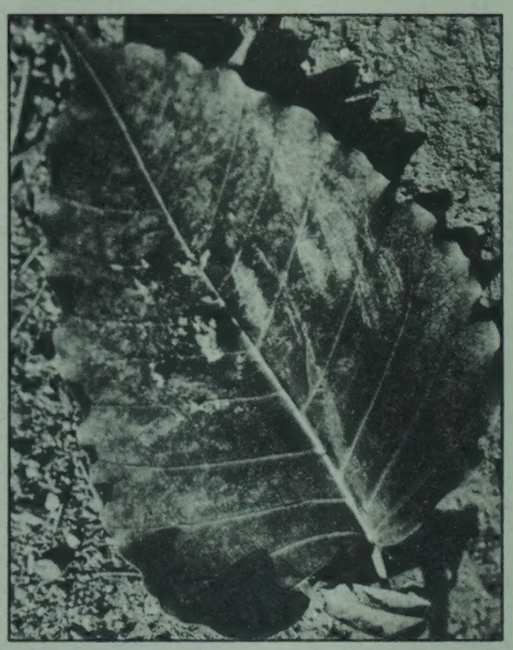
Before the students are taken to the location, list down and arrange for the materials likely to be needed. The following items are generally required, though the quantity may depend on the number of students:

1. Blank sheets of paper (cyclostyling paper is ideal). At least two sheets will be required for each participant.
2. Crayons.
3. Measuring tape or 30 cm scale.
4. Cloth or gunny bag for object identification game.
5. Large handkerchiefs or cloth for blindfolding.
6. Thread or twine, 250 m long.
7. 6 cm x 10 cm blank cards for labels for the games.
8. Worksheets as per sample attached. These may be cyclostyled in advance or students allowed to copy from the sample.
9. Magnifying glass or hand lens.

Session I

Before you begin, allow a few minutes for everyone to become familiar with the site.

Now assemble the group and broadly explain the outline and objectives of the programme. The outline should give the students an idea of the activities, games,and worksheets in the programme.



The students may, at your discretion, be divided into teams as described earlier. You may also conduct the sessions without forming teams.

At the end of the programme the students should be able to:

a) use all their senses of perception in a better and coordinated manner rather than rely heavily on sight alone

b) achieve more awareness of the world of trees through measurement or estimation of their physical aspects

c) describe a variety of living forms on and around a tree

d) understand the inter-relationships among living things with the tree as the foundation or main link

e) think about man's impact, both positive and negative, on all life forms including man himself.

Feel and find

Game 1

Collect (without plucking) different bits of barks, leaves, flowers, fruits, twigs, etc., of a tree from its surroundings.

Blindfold a student and let him/her feel one item for ten seconds (time allowed may be more or less, according to the age group, etc.). After the item has been returned, remove the blindfold and ask the student to go and touch or point out the same item on or around the tree.

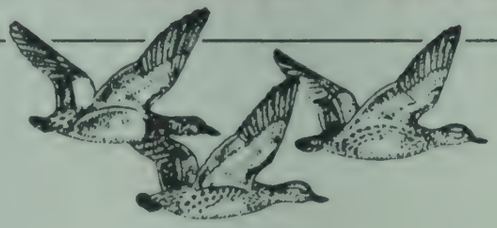
To have an element of fun include a few nearly similar items like the twigs and leaves of Gulmohar and Subabul trees or the leaves of Mango and Asopalav trees, etc.

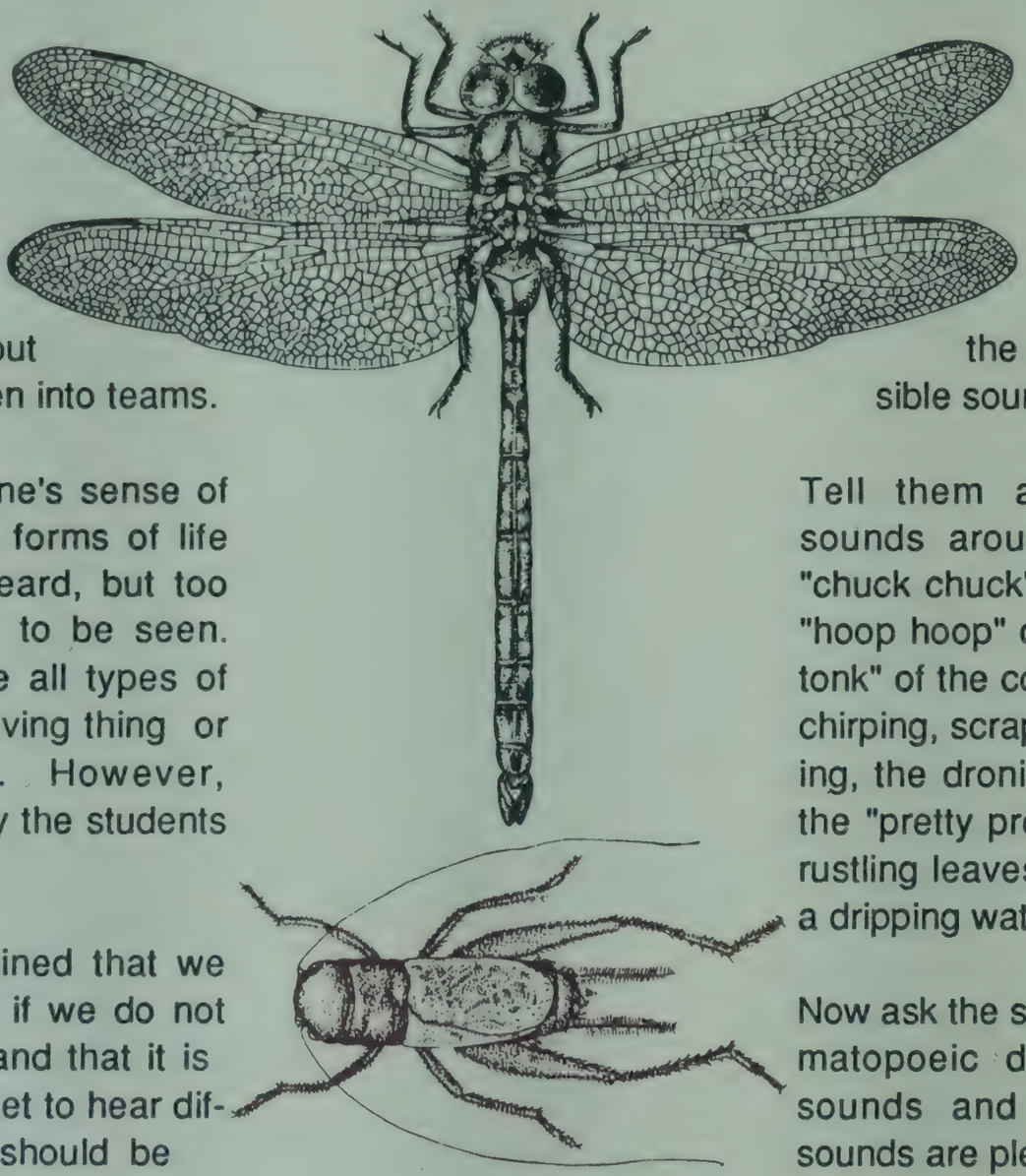
This game could even be played in the classroom. The student could pick up the item felt from the variety displayed in front of the group. One could add a piece of charcoal and a rock, a snake moult, various dead insects and their moults, etc.

In case a blind fold or large kerchief is not available, a cloth bag made of thick and dark material will do. Put an item to be identified in it while the groups face the other side. Ask the participant to put his/her hand inside the bag and identify the item without peeping in.

My Ears Told Me.....

Game 2





This game may be played with or without grouping the children into teams.

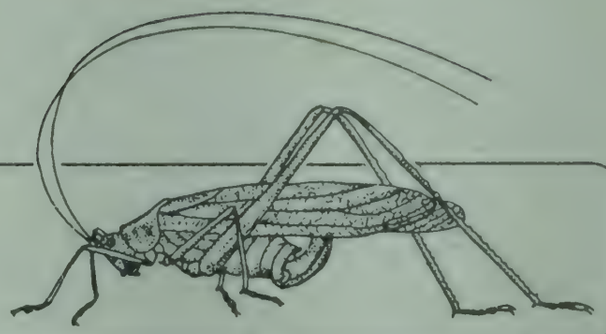
It involves using one's sense of hearing to identify forms of life that are usually heard, but too well camouflaged to be seen. These may include all types of sounds that any living thing or machine makes. However, sounds "created" by the students are to be excluded.

It should be explained that we can hear well only if we do not create any sound and that it is imperative to be quiet to hear different sounds.They should be encouraged to note the sounds and the possible sources of these sounds

Tell them about the various sounds around them like the "chuck chuck" of tree lizards, the "hoop hoop" of langurs, the "tonk tonk" of the coppersmith bird, the chirping, scraping, sawing, gnashing, the droning of bumble bees, the "pretty pretty" of tailor birds, rustling leaves, far away footfalls, a dripping water tap, etc.

Now ask the students to write onomatopoeic descriptions of the sounds and say whether the sounds are pleasant or not.

Worksheet 1



Complement to game 2

Name of investigator(s) with group name if any_____

_____

Std. _____

Date _____ Place _____ Time _____

Onomatopoeic description of sound	Possible source/ location or who/ what made it	Pleasant or unpleasant characteristics

Session II

In the previous session the students were introduced to the programme and their attention was drawn to our neglected senses of perception like feeling and listening. This was achieved through games and the worksheet.

This session is devoted to observing the physical aspects of trees through activities. Students can now be divided into teams in order to carry out the activities. Four activities should be carried out to add to their awareness of the environment. Encourage the teams to identify trees and plants in the area also.

Decide whether these four activities should all be done together or one after another viz. the second activity card being issued only after the first is returned.

Before distributing any acitivity card, however, the entire group must be made aware of outdoor ethics. These are:

(a) to know the necessity of being as quiet as possible so as not to disturb any living form on or around trees

(b) not to damage or destroy any aspect of nature by plucking flowers or leaves, catching insects, disturbing birds, throwing stones at fruits on tree branches, etc.

(c) to leave the place as found, especially, never leaving behind litter like wrappers of sweets, chewing gum, scraps of food, plastic, etc.

Now brief the children on the types of activities to be carried out and give them the cards.

The Height of It

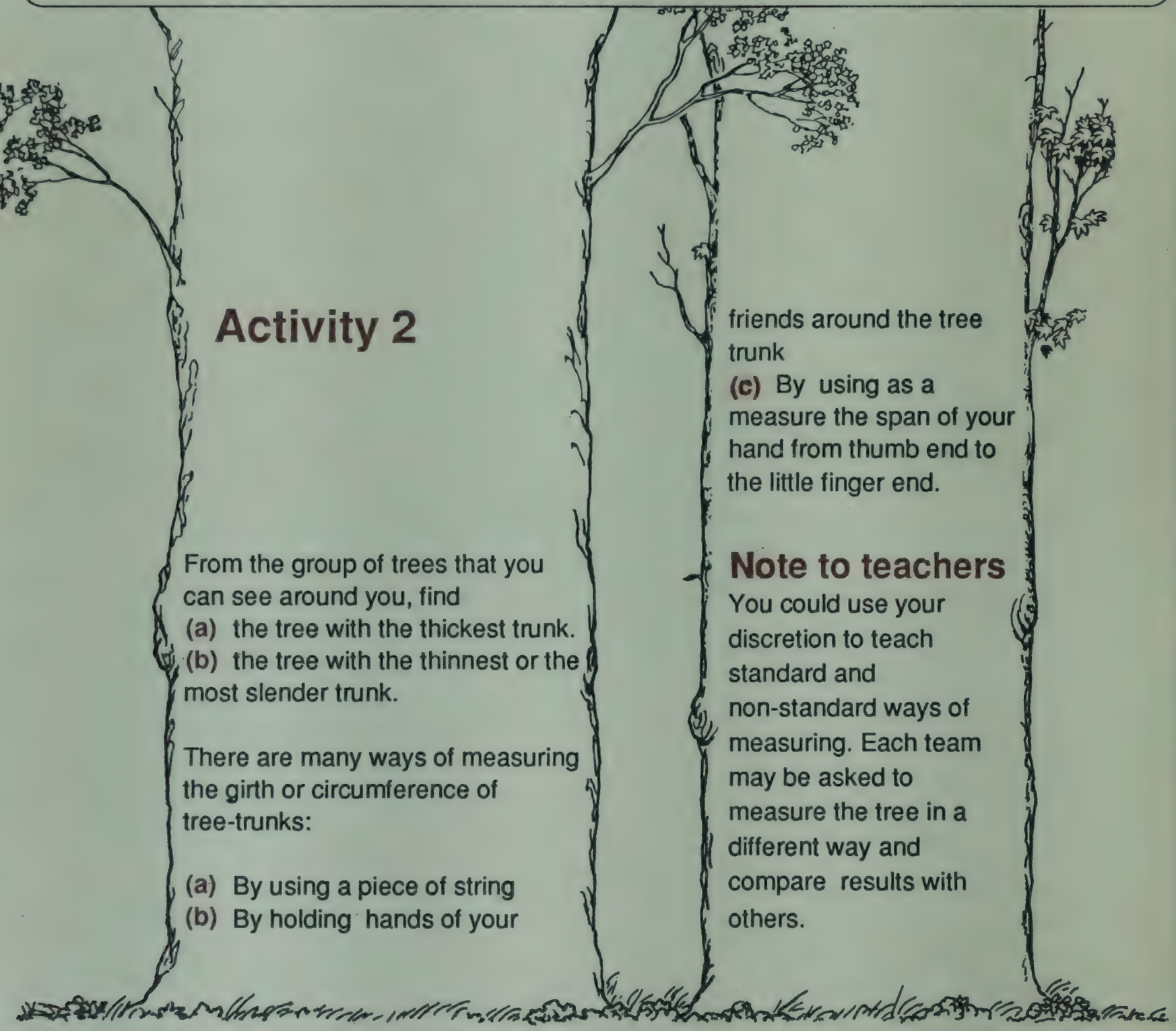
Activity 1

From the group of trees that you can see around you, find the tallest tree. Estimate the height of this tree.

There are many ways of estimating the height of a tree. One of them is suggested here:

1. Walk away from the tree so that the full height of the tree is seen.
2. Take a pencil, scale or a straight stick in your hand and hold it with your arm fully outstretched .
3. Now hold the stick so that the upper end appears to be in line with the top of the tree.
4. Slide your thumb downwards on the stick till it is in line with where the tree meets the ground.
5. Turn the stick through a right angle i.e., from a vertical to a horizontal position on either the left or the right side.
6. Keep the thumb-end of the stick in line with the base of tree and with the upper tip mark or note the distance it appears to cover on the ground. To mark it ask a friend to move slowly away from the tree moving in the same direction as the stick and parallel to it. When your friend appears to reach the end of the stick tell him/her to stop.
7. The distance between your friend and the tree is now measured to get an estimate of the height of the tree.

Thick and Thin



Activity 2

From the group of trees that you can see around you, find
(a) the tree with the thickest trunk.
(b) the tree with the thinnest or the most slender trunk.

There are many ways of measuring the girth or circumference of tree-trunks:

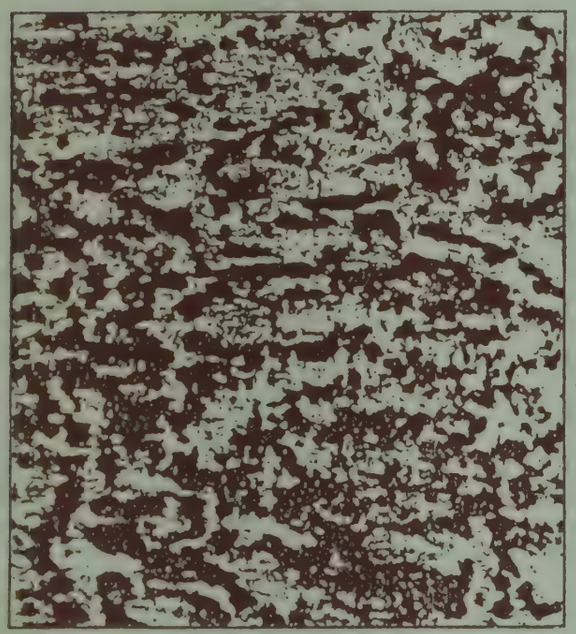
(a) By using a piece of string
(b) By holding hands of your friends around the tree trunk
(c) By using as a measure the span of your hand from thumb end to the little finger end.

Note to teachers

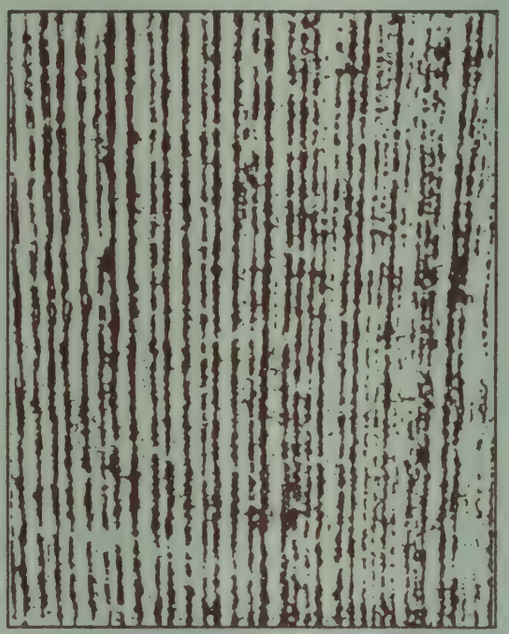
You could use your discretion to teach standard and non-standard ways of measuring. Each team may be asked to measure the tree in a different way and compare results with others.

Tree Autograph

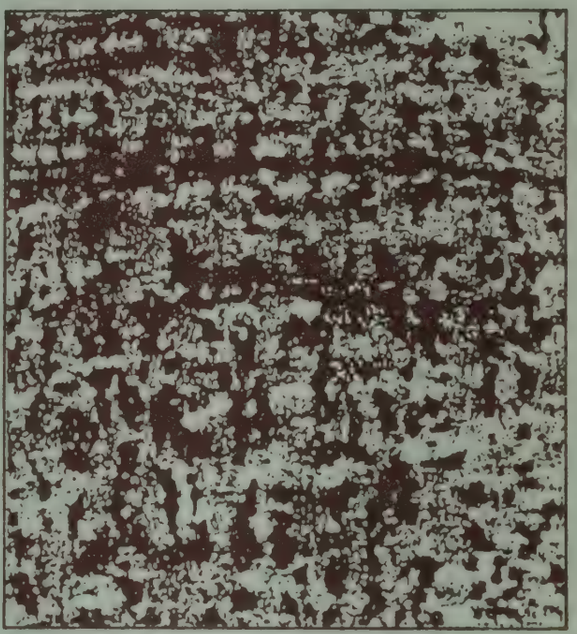
Activity 3



Neem



Palm



Almond

From among the group of trees that you can see around you, find:

a) the tree with the smoothest bark.

b) the tree with the roughest bark.

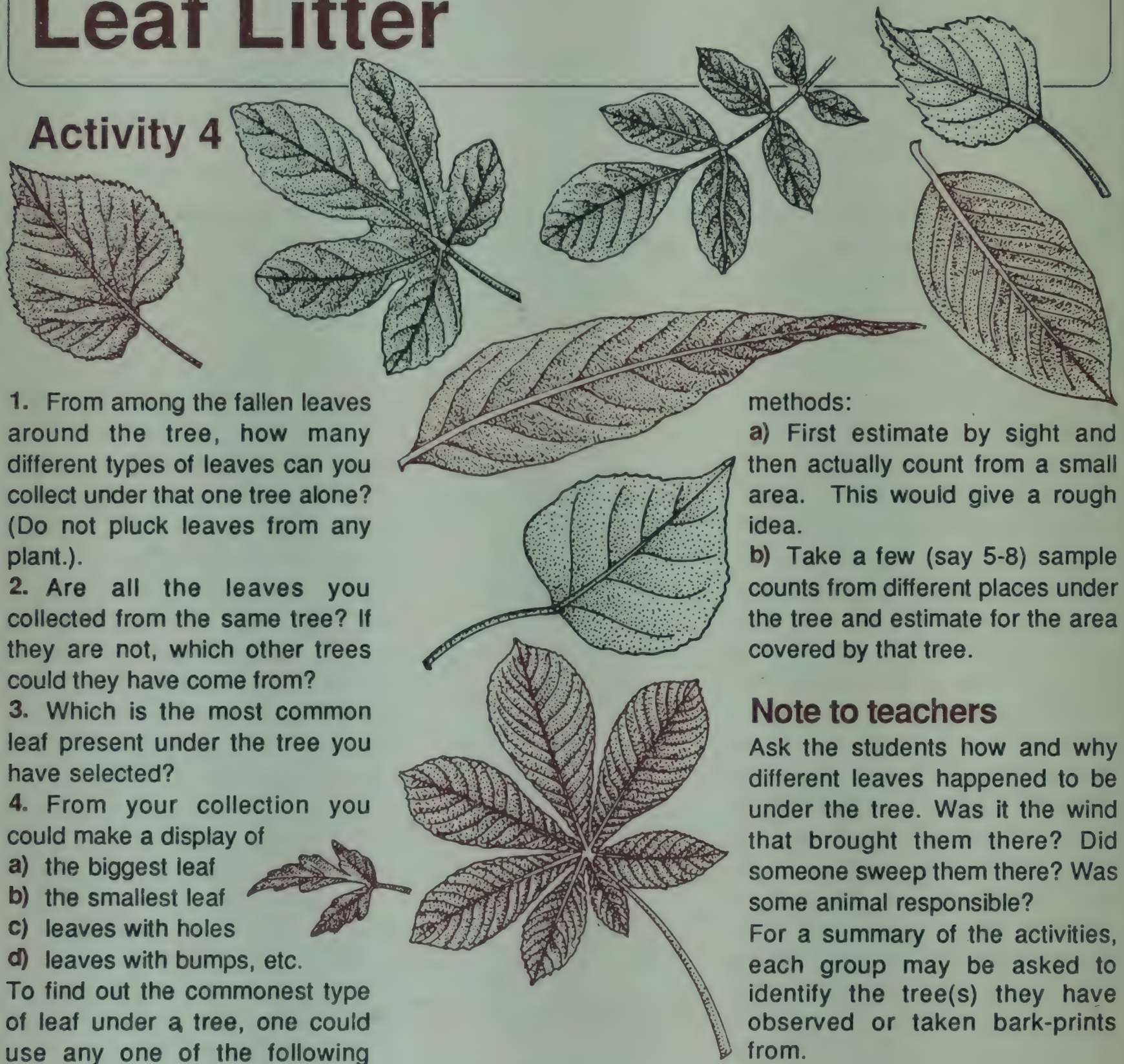
Can you identify these trees by name? Also take impressions of the different barks on paper, just like taking a fingerprint. This is the tree's autograph.

Palm

To take autographs of trees, hold a blank sheet of paper steadily against the bark. Rub crayon over the sheet to get the impression of the bark. The ridges will be coloured while the cracks in the bark will remain blank. If possible, match the colour of the bark with the crayons you use or describe the colour alongside the autograph. Try this with different kinds of trees and compare.

Leaf Litter

Activity 4



1. From among the fallen leaves around the tree, how many different types of leaves can you collect under that one tree alone? (Do not pluck leaves from any plant.).
2. Are all the leaves you collected from the same tree? If they are not, which other trees could they have come from?
3. Which is the most common leaf present under the tree you have selected?
4. From your collection you could make a display of
   a) the biggest leaf
   b) the smallest leaf
   c) leaves with holes
   d) leaves with bumps, etc.

To find out the commonest type of leaf under a tree, one could use any one of the following methods:

a) First estimate by sight and then actually count from a small area. This would give a rough idea.

b) Take a few (say 5-8) sample counts from different places under the tree and estimate for the area covered by that tree.

Note to teachers

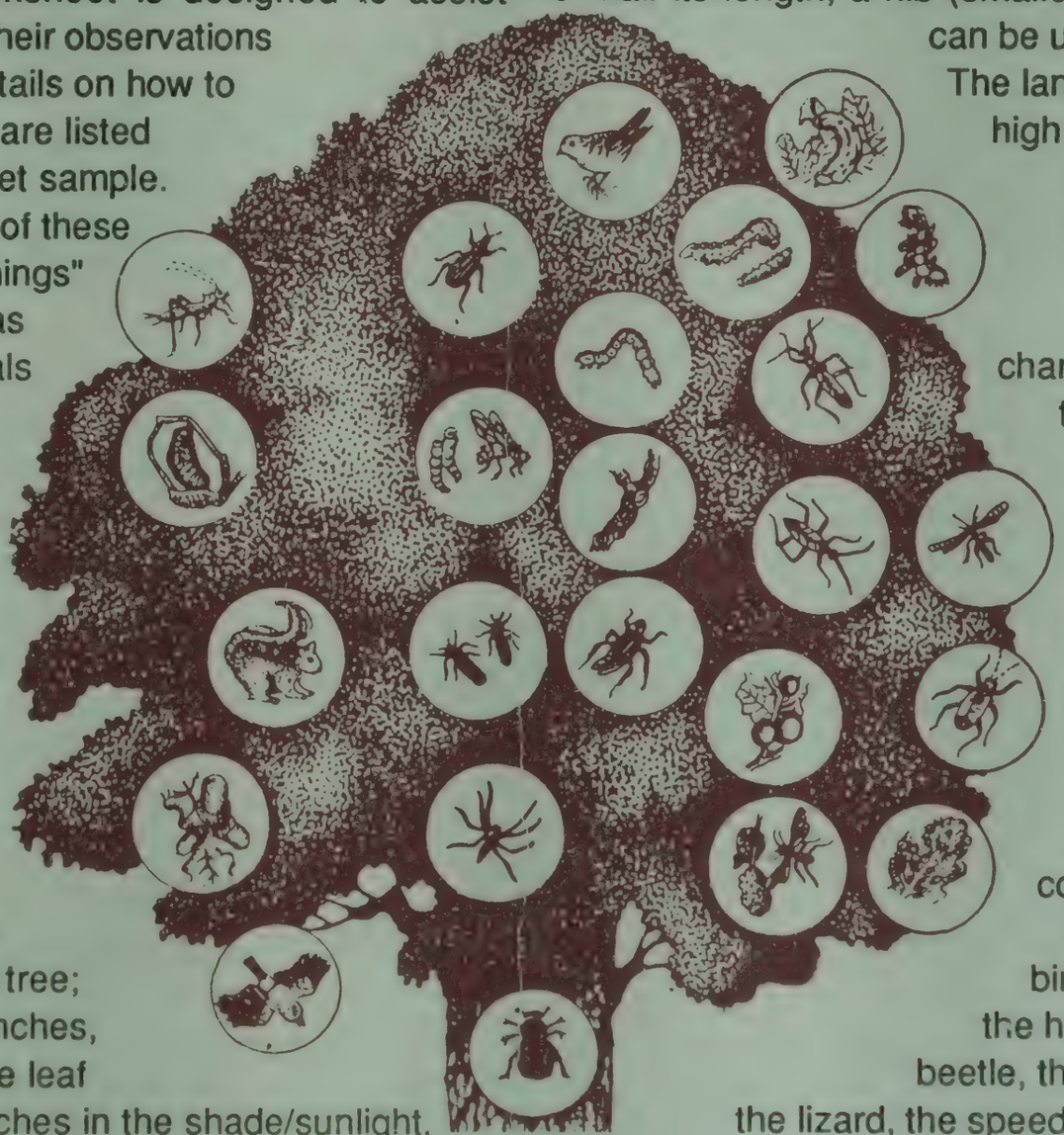
Ask the students how and why different leaves happened to be under the tree. Was it the wind that brought them there? Did someone sweep them there? Was some animal responsible?

For a summary of the activities, each group may be asked to identify the tree(s) they have observed or taken bark-prints from.

Session III

In this session, the teams concentrate on listing the names of the living things observed on and around a tree. In order to do this, each team has to select a particular tree on which it feels an optimum variety of life could be found.

The following worksheet is designed to assist them in recording their observations systematically. Details on how to use the worksheet are listed below the worksheet sample.



a) For the purpose of these activities, "Living things" may be classified as plants, small animals (like earthworms, slugs, spiders, scorpions, insects, etc.,), birds, and large animals (like lizards, snakes, squirrels, monkeys, etc.).

b) "Seen Where" should give location,e.g., among top, middle or lower part of the tree; among leaves, branches, flowers, trunk; in the leaf litter; on dead branches in the shade/sunlight, etc.

c) "Size" is very easy to record if associated with known objects or living things, e.g., a dove is smaller than a pigeon, which in turn is smaller than a crow. For insects, the size of a pin's length or half its length, a nib (smaller or larger than it) can be used as a standard. The langur could be chest high for many students, etc. Do encourage accurate recording in metric terms.

d) "Outstanding characteristics" include the first aspect that strikes one about the particular living thing, e.g., the long tail of the langur or peacock, the crest of the hoopoe, the long legs of cranes, the bright colours (name these colours) of certain birds (eg, peacocks), the hard covering of the beetle, the scales and tail of the lizard, the speed of dragonflies, the

fat bodies of bumble bees, etc.

e) "Doing what" is not relevant to the plant category. It includes a variety of activities like sleeping, feeding, grooming itself/others, stalking, hiding, hunting, on the lookout, resting, nesting, feeding young ones, etc.

f) "Comments and sketches". Only rough sketches to help quick identification. Everyone may not be an artist and our purpose here is only to get an idea of the shape etc., of what is seen.

At the end of this activity, the team leaders may exchange information and try to identify the common factor which unites or brings all these living things here. The inter-relationships are usually either symbiotic or in competition for food and space.

Comments on how the living thing is related to the tree as well as to other living things on and around the tree should be included. For example, bees are pollinators and have a symbiotic relation with the tree since they get nectar from the flowers; or, the praying mantis uses the tree as an indirect source of food - attacking insects that visit the tree; others use the tree for shelter or as a convenient look-out point.

Worksheet 2

Name of investigator(s) with group name if any

_____

Std. _____

Date _____ Place _____ Time _____

Name of living thing	Seen where	Size	Outstanding characteristics	Doing what	Comments and sketches
Plants					
1.					
2.					
3.					
Small Animals					
1.					
2.					
3.					
Birds					
1.					
2.					
3.					
Large Animals					
1.					
2.					
3.					
4.					

Session IV

This final session is aimed at observing man's impact on the environment, on trees of the area in general and on the particular tree selected.

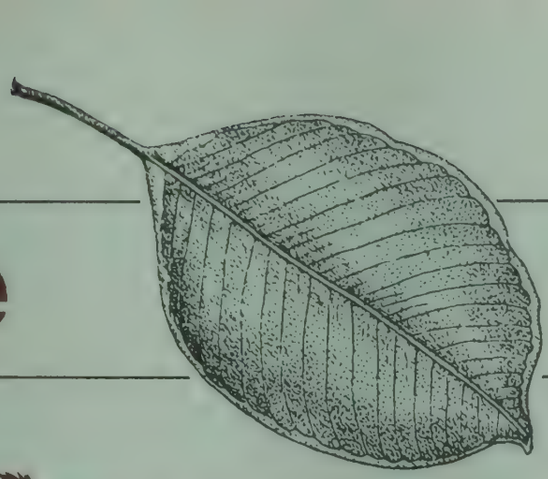
The teams are asked to observe and list within 10 minutes what activities of man are affecting this area. These would include positive activities like planting trees, leaving nature undisturbed to take its own course, protecting the place, etc.; or negative ones, like cutting trees or branches, plucking leaves, flowers or fruits, harming wildlife either by killing directly or indirectly through pesticides; damaging trees by carving initials or peeling barks; etc.

The teacher should highlight the variety of life forms that are dependent on a tree, their independent and interdependent functioning, man's impact on these and how to overcome the problems of dwindling natural resources so essential for the continued survival of all life of which man is only a part.

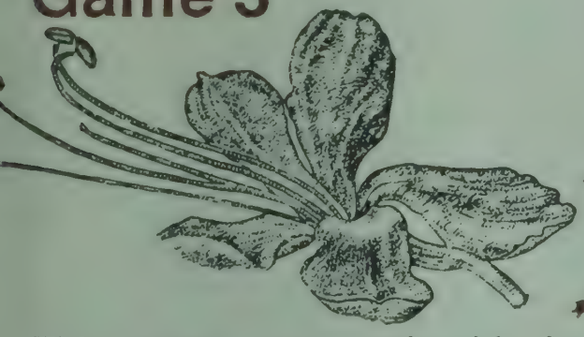
Exchange of information should lead to a discussion through which the main concepts can be outlined and the whole programme consolidated.

An effective way of demonstrating the inter-relationships is through the game described in the following page. To get a better visual effect of the concept being communicated, this game should be played with at least 20 students.

Web of Life



Game 3



This game may preferably be played after the students have played the games "Who Am I" and "The Poet in the Child". The whole group sits in a circle. Each student identifies himself/herself with one aspect of nature e.g., rock, sun, soil, air, water, grass, tree, leaf, flower, bird, cow, butterfly etc. See the list of names for this game. The list is arranged in the order of priority upto the first 24 names. Distribute to each student a badge or card-label with his assumed identity written on it clearly enough for everyone to see. Make sure to include and distribute cards depicting the four main elements of nature, viz., Sun, Soil, Air and Water. Take a ball of string about 250 m long and give it to "Sun". It is appropriate to begin with the "Sun" because all life is made possible by it. Let the "Sun" wind one end of the string on his finger and throw the ball to any aspect of nature he feels related to him. For example, the Sun gives energy to plants or trees. The "Tree" then winds the string once or twice around his finger after ensuring that it is not loose between the Sun and him. He then passes it to another aspect he feels related to, e.g., fruit. "Fruit" can throw the string to "Parrot" and the line of relationships continues as the string unwinds and begins to form a pattern which the students hold together. The ball of string is thus completely used.

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Ask the students to see the web-like effect of the string. Then ask them to raise the web chest high. Let them hold it tightly so that if the web is pressed down it does not sag and touch the ground. Ask the students to notice this.

Ask the students what would happen if some of these elements did not exist. Let the student representing these elements drop the string. Notice

the visual effect. More elements may be dropped to dramatize the effect. Now press the web down. It would probably touch the ground because it is loose.

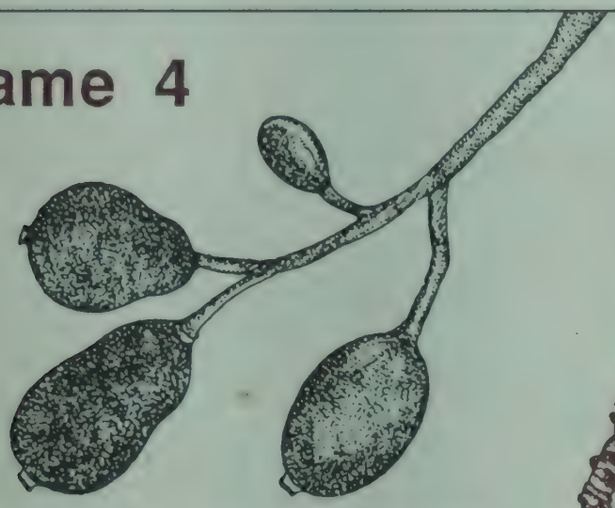
Ask the students what would happen if the Sun or the other three major elements of nature did not exist. Conclude the game by explaining to the students how inter-relationships exist and why they are important.

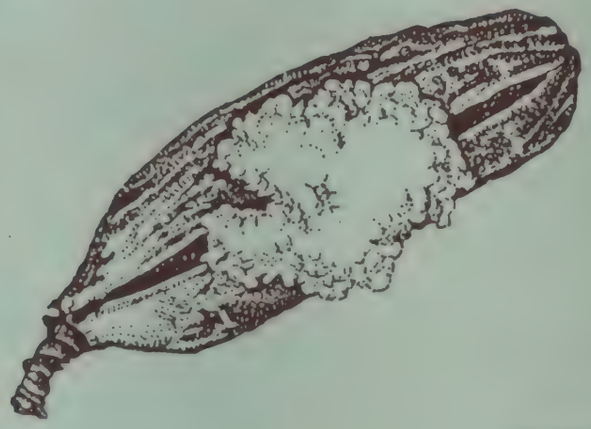
Extensions/Variations

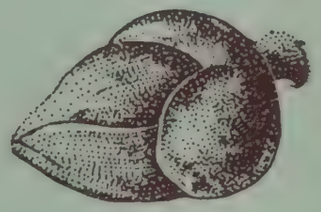
Here are a few ideas to bring variety into your sessions. You may incorporate any or all of these extension and variation ideas in your programme. You could then have a choice to change, adapt and refine the sessions at your convenience.

Go and Touch

Game 4

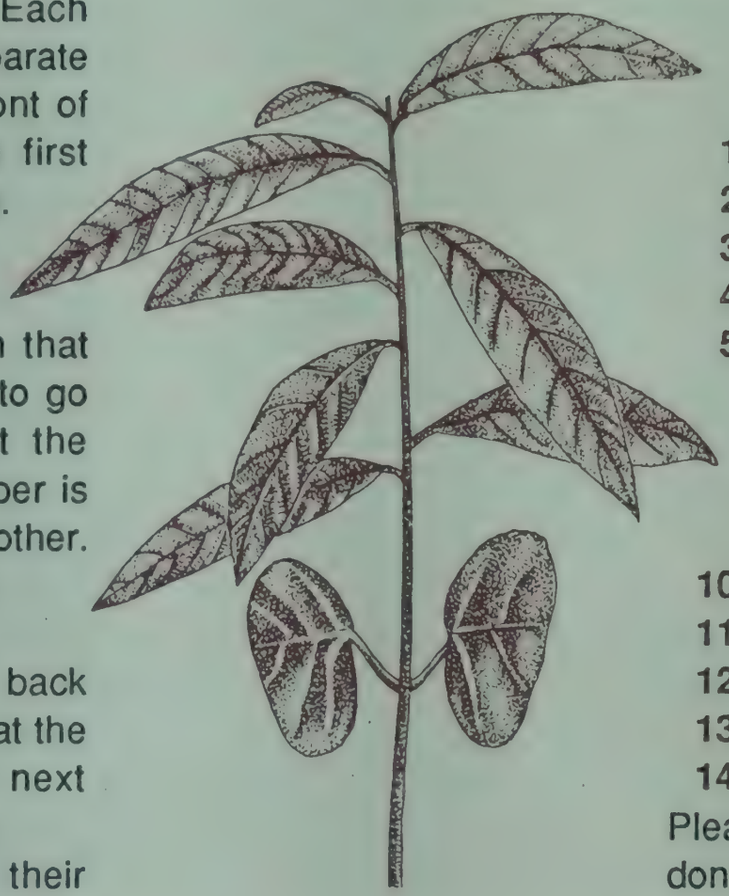






This is played as a team game with an equal number of members in each team. Each team is assembled in a separate row. A line is drawn in front of each row from where the first member of each team starts.

As soon as the teams are ready, explain to them that only the first member has to go and touch the object that the teacher calls out. No member is to speak, guide or advise another. Points may be deducted for any breach of rules. The first team member to reach back gets a point. He then joins at the end of the line and the next member now gets a chance. One good way to sharpen their observation is to ask for something to be touched and point out in the wrong direction.



Students may be asked to touch:

1. A living thing
2. Something green
3. Something brown
4. A mango tree
5. A neem tree
6. Grass
7. Something wet
8. A fruit
9. A flower (red etc.)
10. A brown leaf
11. A compound leaf
12. A feather
13. A smooth bark
14. A fallen twig or branch

Please ensure that no damage is done to the surroundings.

Memory Game

Game 5

This game increases the power of concentration of the students while observing as objectively as possible. It also encourages the retention of observations made.

Collect around 30 items of nature like different types of leaves, branches, soil, stones, shells, snake moults, fruits etc., without harming living things. Put these on a large tray. Cover with a cloth.

Ask the group to assemble around. Remove the cloth for 20-30 seconds. The time can vary depending on the age group of students. Then cover the tray again. Ask the individuals to write down all the items they have seen.

Variation

Add ten or so man-made items like a rag, needle, button, watch, pencil, slipper, ring etc., and ask the children to:

a) List only the natural items

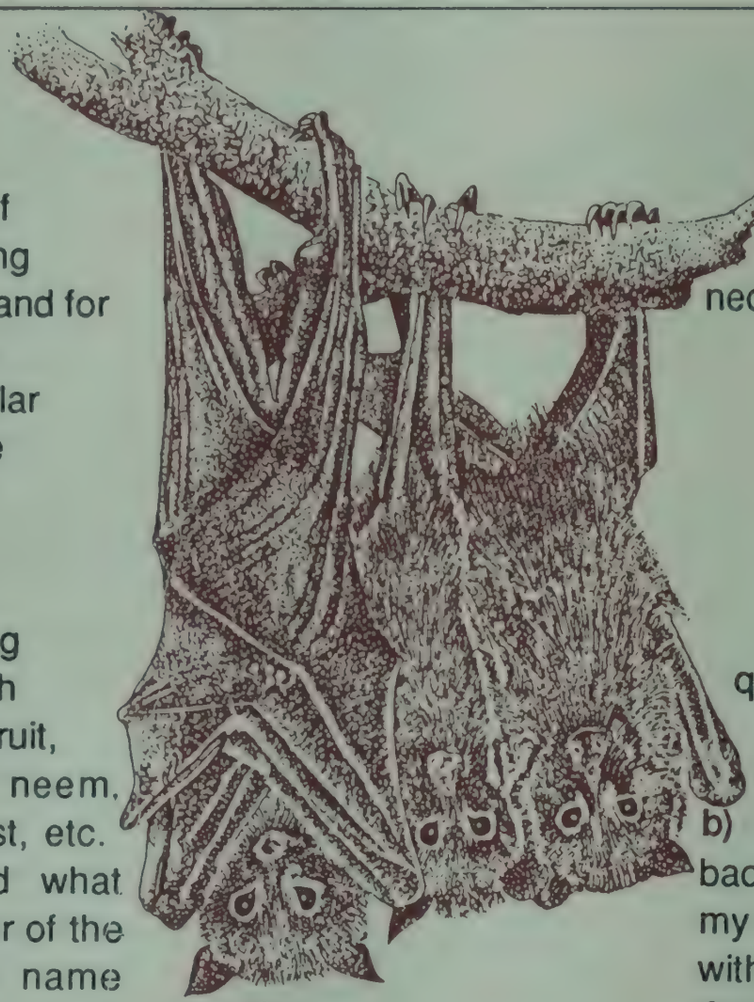
b) Make separate lists of natural and man-made items.

c) Describe each object in terms of size, outstanding characteristics, main colour, associated colours, shape, texture, similar to or different from associated objects, where it is found, and any other interesting aspect.

Who Am I?

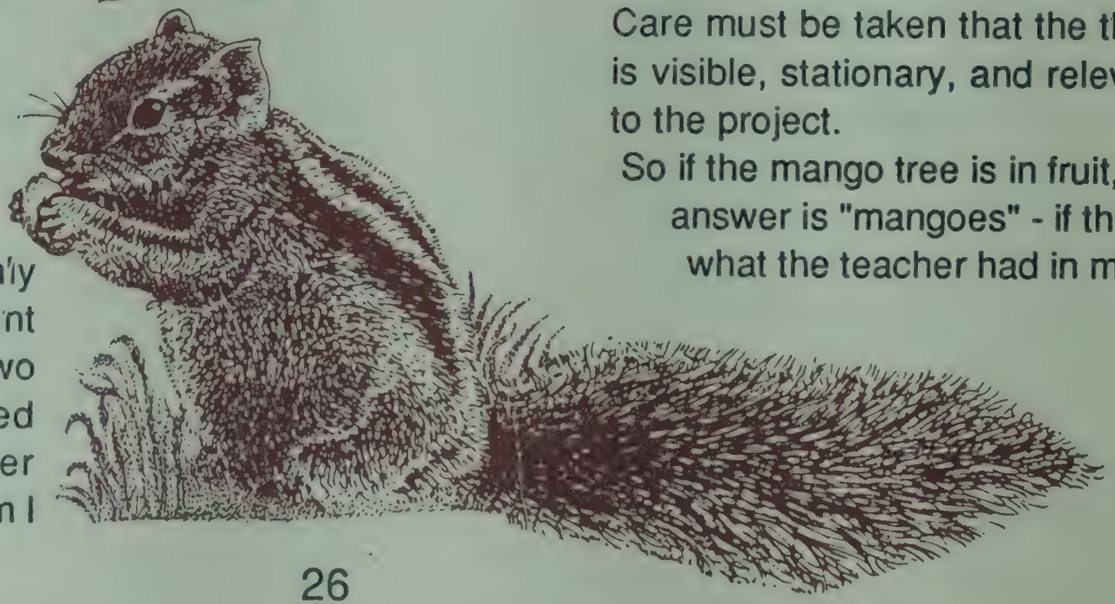
Game 6

For encouraging the use of deductive logic in identifying various aspects of nature and for gaining an insight into the characteristics of a particular aspect of nature this game may be played.



Divide the class into two teams. A relevant name tag is fixed on the back of each participant. For example, fruit, seed, flower, mango, neem, sparrow, spider, egg, nest, etc. The participant is not told what name he bears. A member of the other team reads the name silently.

The first participant asks relevant questions regarding his identity. The partner knowing the name, answers only 'yes' or 'no'. The first participant has three guesses within say two minutes (time may be varied according to age) to answer correctly. Questions such as 'Am I a living thing /non-living thing? 'Do I live on a branch', 'Do I fly?' 'Do I eat fruit/insects/ nectar?' etc., are allowed. Leading questions like 'Am I a branch?' (if a person is labelled 'branch'), are not allowed.



Variations

a) Instead of time limit, you could limit the number of questions - say first, second and third guesses to be made after five, ten and fifteen questions.

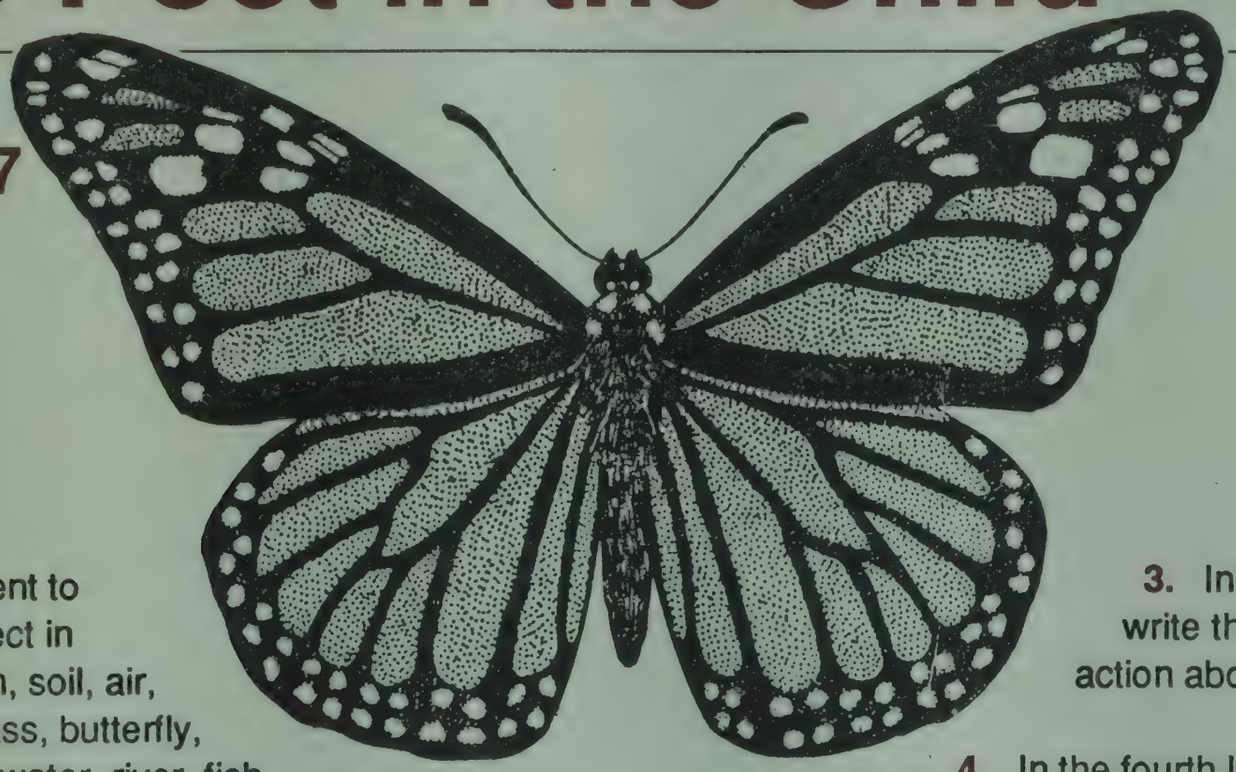
b) Instead of name tags on the back, the teacher says, "I spy with my eyes something beginning with the letter M".

Care must be taken that the thing is visible, stationary, and relevant to the project.

So if the mango tree is in fruit, the answer is "mangoes" - if that is what the teacher had in mind.

The Poet in the Child

Game 7

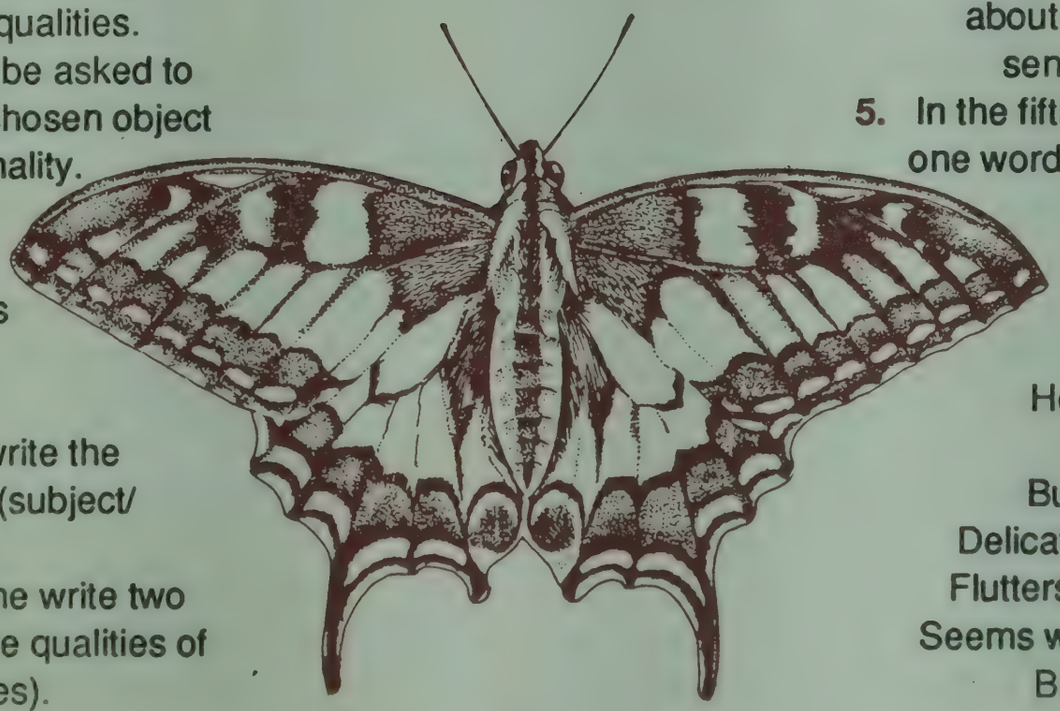


Ask each student to choose an object in nature (like sun, soil, air, cloud, tree, grass, butterfly, sparrow, tiger, water, river, fish, etc.,) which he feels reflects his own personality or qualities. Students may then be asked to speak on how the chosen object reflects their personality.

Let them then take up their papers and pencils and:

1. In the first line write the name of the object (subject/ noun).

2. In the second line write two words describing the qualities of the object (adjectives).



3. In the third line write three words of action about the object (verbs).

4. In the fourth line write four words describing how they feel about the object (phrase, sentence, expression).

5. In the fifth and last line write one word to replace the title (synonym).

Now let them read it like a poem. Here is an example -

Butterfly
Delicate graceful
Flutters finds sips
Seems weak but isn't
Beauty

Activities

Apart from the four activity cards, students may also be asked to-

1. Find animals among the fallen and rotting leaves. Animals could be classified as those that hop, wriggle or do not move at all.

2. Find out how many trees and how many kinds of trees they can list on the way to school within 1 km or 1200 steps from the school gate.

3. Estimate the height of a tree. Ask a friend to stand straight against the trunk. Take a pencil or a straight stick in your hand. Walk away from the tree so that the top is clearly seen. Stretching your arm fully, measure your friend on the pencil or stick. Now measure how many times this pencil height goes into the whole tree. Remember to keep your arm fully stretched. Finally multiply the number of times by your friend's height to get the height of the tree. E.g., if your friend is 1.50 m tall, and his height goes six times into the tree then the tree is 1.50 m x 6 = 9 m tall.

4. Using Pythagora's theorem, students could measure the shadow of a tree, particularly towards evening, and measure the shadow of a stick or ruler and work out the area covered by a tree (by its shadow). Also the area that is shaded at different times of the day.

5. How many different birds visit the tree? When in the day and why?

6. How many other kinds of plants grow under the tree and on it? Describe them and if possible, name them.

7. Estimate the volume of the tree. To find out the volume of a tree, take a large twig and find out its volume by the water displacement method. Then estimate how many such twigs would fill the tree and multiply that number by the volume of the twig.

8. Estimate the weight of the tree. Follow the same procedure as for determining the volume of the tree except that the weight of a large twig is to be taken.

9. Sketch the shape of the tree. It is easy to sketch the shapes of trees if these are associated with common objects like a pole, a large spear tip, a lollipop, a broken lollipop, an umbrella, etc.

10. List the uses of the tree by animals while it is standing and also after it has been cut.

Uses of a Tree

When Alive:

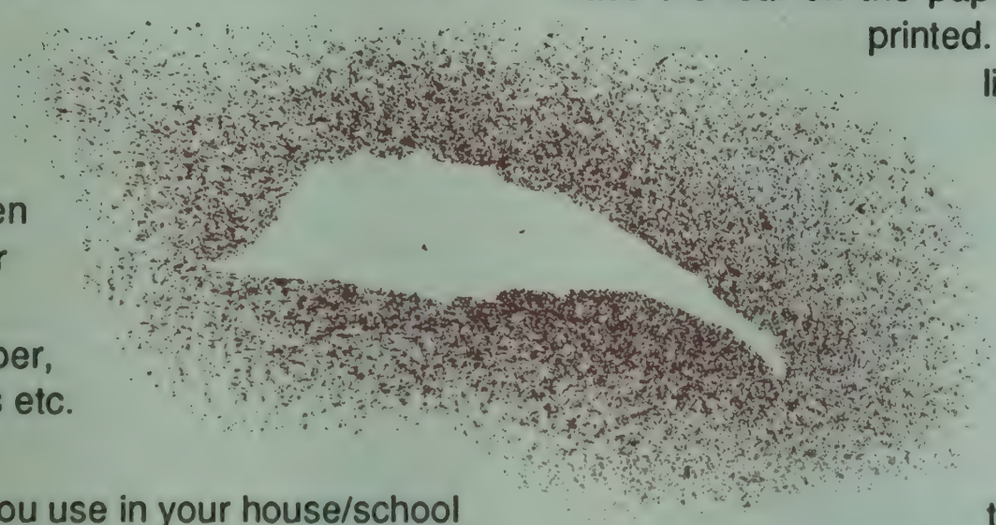
As food - for man, other plants, animals
As shelter - for man, camouflage for birds, insects etc.
As habitat - for other plants e.g., epiphytes
As a look-out point - for birds of prey
As part of the air cycle
As part of the water cycle
As a trapper of sun's energy
As a holder of soil

When Dead (Rotting)

As shelter - for insects etc.
As food - for beetles, termites, decomposers
As habitat - for various insects, lizards etc.

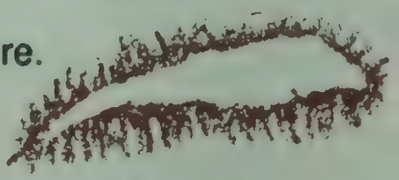
When Cut

For making various objects from match-sticks to ships
For construction
As implements
As fuel
As items of use when combined with other materials or processed, e.g., paper, matchsticks, clothes etc.



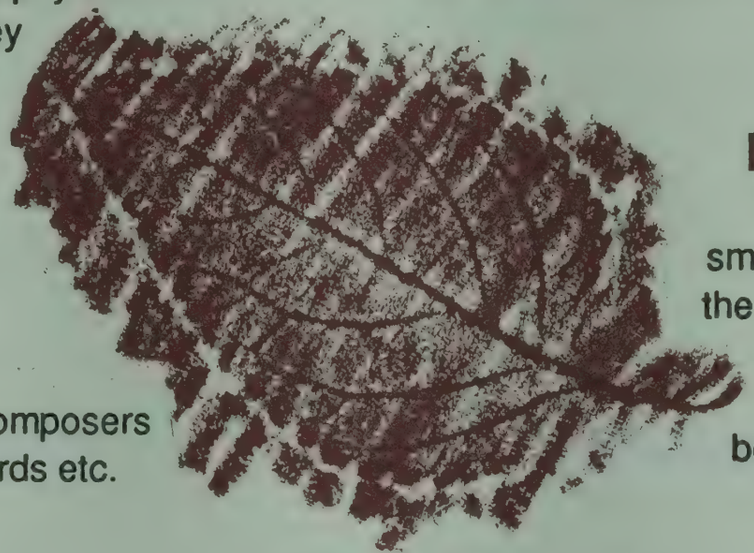
11. List the items you use in your house/school which are made from parts of a tree. Can any of these be replaced with something else which is easily available?

12. Take leaf impressions or autographs using different methods.
A few methods are given here.



I. Silhouette print:

Place a leaf on a sheet of paper. Using a crayon make short strokes outwards from the edges of the leaf holding the leaf firmly in place.



II. Crayon print:

Place the leaf on a smooth solid surface with the veined side up. Cover the leaf with paper on which the print is to be made. Using crayon rub on the paper.

III Spatter print:

Place the leaf on the paper on which it is to be printed. Make sure that the leaf lies flat. Dip an old tooth brush in thin water colour. Shake off any surplus water colour. Holding the brush above the paper scrape the bristles and spray the paper around the margins of the leaf. Label the print with relevant details.

Alternative Worksheet 1

Developed by Mrs. Jyotiben Trivedi, a teacher who tried out the programme with her students.

1. How many trees can you name?

2. Of the trees that you have named, how many have you seen?

3. From the trees around you, how many can you name?

4. Take the leaves of any three trees around you. Do not pluck the leaves but pick the ones that have fallen on the ground.

   Mention the similarities and differences of these leaves.

Similarities:

1.
2.
3.
4.

Differences:

1.
2.
3.
4.

5. What are the differences in the trunks of these three trees?

6. From the trees around you:
   Which tree has the thickest trunk?

   Which tree has the thinnest trunk?

7. How will you measure the thickness of the tree trunk?

8. From the trees around you:
   Which tree has the smoothest bark?

   Which tree has the roughest bark?

9. With the help of the instructions (Activity No. 3) take bark prints.
10. With the help of the instructions, estimate the height of the tree.
11. Draw a picture of the tree.

Alternative Worksheet 2

Developed by Mrs. Jyotiben Trivedi.

1. Select any one tree.
2. Describe the leaves of this tree.

_____

_____

3. Are the branches of the tree spread out and full of leaves?

_____

_____

4. What is the colour of its trunk and branches?

_____

_____

5. Can you see any fruits on the tree? Name them.

_____

_____

6. Describe the trunk of the tree.

_____

_____

7. Measure the thickness of the tree trunk.

_____

_____

8. Can you see any insects on the ground under the tree? Name them.

_____

_____

_____

9. Can you see any insects on the tree trunk? Name them.

_____

_____

_____

10. Can you see any birds or animals on the tree? Name them.

_____

_____

_____

11. Can you describe one bird that you see on the tree?

Colour _____

Size _____

Sound _____

Tail _____

How it flies _____

12. Can you see any bird-nest on the tree? _____
13. Which bird do you think made the nest?

_____

14. Estimate the height of the tree.

_____

15. Take bark prints.
16. Use your imagination and find out what you can see in the bark prints.
17. Draw a picture of the tree.

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List of Names for Web of Life

1.Sun
2.Air
3.Water
4.Soil
5.Tree
6.Fruit
7.Parrot
8.Algae
9.Fish
10.Eagle
11.Turtle
12.Insect
13.Frog
14.Mosquito
15.Lizard
16.Leaf
17.Flower
18.Butterfly
19.Ant
20.Student
21.Grass
22.Dead leaf
23.Earthworm

24.Root
25.Shrub
26.Seed
27.Fungus
28.Dragonfly
29.Monkey
30.Spider
31.Snake
32.Mongoose
33.Kingfisher
34.Washerman
35.Woodcutter
36.Buffalo
37.Honey
38.Honeybee
39.Squirrel
40.Moss
41.Grasshopper
42.Plastic bag
43.Dead wood
44.Paper
45.Crocodile

Project Learning Tree[1] and **Project WILD**[2], two innovative programmes in the US, have inspired the development of many of the ideas and activities presented in this Manual.

1. American Forest Institute, Inc.
   1619 Massachusetts Avenue, N.W., Washington D.C. 200 036

2. Western Regional Environmental Education Council
   Project WILD, Salina Star Route, Boulder, Colorado 80302

Photo : Kailash Sankhala. © CEE